

YOKOYAMA et al. -- 09/849,344
Client/Matter: 041411-0277195

REMARKS

Claims 1 and 3-5 are pending. By this Amendment, claim 1 is amended.

Entry of this Amendment is proper under 37 C.F.R. § 1.116 as the amendments: (a) place the application in condition for allowance for the reasons discussed herein; (b) do not raise any new issues that would require further consideration and/or search as the amendments merely amplify issues previously discussed throughout the prosecution; (c) do not add any additional claims without canceling a corresponding number of claims; and (d) place the application in better form for appeal, should an appeal be necessary. The amendments are necessary and were not earlier presented as they are in response to arguments raised in the final rejection. Entry of this Amendment is respectfully requested.

Claims 1 and 5 were rejected under 35 U.S.C. § 102(b) over Nakamura et al. (U.S. Patent No. 5,518,390). The rejection is respectfully traversed.

Claim 1 recites an injection control method for a die-casting machine, wherein molten material is injected into a casting mold by an injection cylinder unit. The method includes setting target velocity data specifying an injection operation required for the injection cylinder in advance and performing a first shot of an injection operation, and recording command data provided to the injection cylinder unit and detecting velocity data indicating the operation performed by the injection cylinder unit during the first shot of the injection operation. The method further includes determining a difference between the detected velocity data and the target velocity data and calculating a correction value based on the difference by operating the injection cylinder unit for a predetermined number of the injection shots by injection position feedback control and terminating the position feedback control after the predetermined number of injection shots. The method further includes using the calculated correction value and generating command data for a second shot of the injection operation. The method further includes operating the injection cylinder unit by providing to it the command data for the second shot of the injection operation while shifting the control to open loop control of injection velocity by command data generated from the correction value and the previous command data.

Nakamura et al. do not disclose or suggest calculating a correction value based on the difference by operating the injection cylinder unit for a predetermined number of the injection shots by injection position feedback control; terminating the position feedback control after a predetermined number of injection shots; and using the calculated correction value and generating command data for a second shot of the injection operation as recited in claim 1.

YOKOYAMA et al. - 09/849,344
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Nakamura et al. disclose open-loop controlling the speed of the actuator 2 by correcting the command value V_c of speed by a correction value A_v when a measured speed V_d deviates from a setpoint V_s of speed and a measured pressure P_d deviates from a setpoint P_s of pressure. In other words, Nakamura et al. teach open loop control where the reference value, i.e. the setpoint(s), is designated only as previously determined data, whereas in the claimed invention, the command data is determined by the actual injection position feedback control.

Claim 5 recites additional features of the invention and is allowance for the same reasons discussed above with respect to claim 1 and for the additional features recited therein.

Reconsideration and withdrawal of the rejection of claims 1 and 5 are respectfully requested.

Claims 3 and 4 were rejected under 35 U.S.C. § 103(a) over Nakamura et al. in view of Bulgrin (U.S. Patent No. 5,997,778). The rejection is respectfully traversed.

Claims 3 and 4 recite additional features of the invention and are allowable for the same reasons discussed above with respect to claim 1 and for the additional features recited therein.

Furthermore, it is respectfully submitted that Bulgrin fails to cure the deficiencies of Nakamura et al. with respect to claim 1, and even assuming it would have been obvious to combine the reference teachings, the combination would not include all the features of claim 1 and would fail to present a *prima facie* case of obviousness against claim 1.

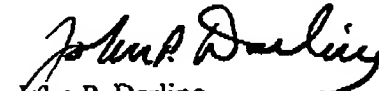
Reconsideration and withdrawal of the rejection of claims 3 and 4 are respectfully requested.

In view of the above remarks, Applicants respectfully submit that all of the claims are allowable and that the entire application is in condition for allowance.

YOKOYAMA et al. — 09/849,344
Client/Matter: 041411-0277195

Should the Examiner believe that anything further is desirable to place the application in condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,
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